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417.831.1411
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ARC-SB Aseptic Remote Controlled Valve with Steel Bellows

ARC-SB is an air-operated valve which is available as a shut-off or divert valve for aseptic installations. The special design and selected material ensure that the valve is suited for aseptic operating conditions such as high sterilization temperatures.

Working Principle

The valve is operated by means of compressed air and can be supplied with or without spring return. The stainless steel bellows combined with the stem and cover form a unit ensuring a safe sterile sealing towards the atmosphere. Optimum hygienic qualities and immediate leakage indication is achieved by the use of single-walled steel bellows. For heavy duty applications, double-walled steel bellows is optional.

Standard Design

ARC-SB consist of actuator, stem unit with stainless steel bellows and SRC valve bodies. All components are assembled by means of a clamp ring and a stem clip-system.

Figure 1. ARC-SB shut-off valve



Materials

Product wetted steel parts:	Acid-resistant steel AISI 316L
Other steel parts:	Stainless steel AISI 304
Finish:	≤ 32 RA
Product wetted seals:	EPDM rubber
Other seals:	NBR, EPDM

Technical Data

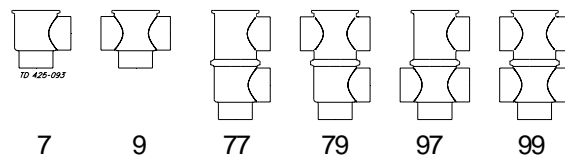
Pressure range:	0-116 PSI
Temperature range:	14°F to 284°F
Maximum sterilization temperature (steam - short time):	302°F - 55 PSI
Air pressure:	73 - 116 PSI

Note! Vacuum is not recommended in aseptic applications.

Expected lifetime of steel bellows under normal conditions:
(no pressure shocks or cavitation)

Valve Size	Shut-Off Valve activations	Divert Valve activations
1.5-inch	150,000	30,000
2-inch	150,000	30,000
2.5-inch	150,000	30,000

Valve Body Combinations



Actuator Function

- Air to lower, spring return (NO)
- Air to raise, spring return (NC)
- Air to raise and lower (A/A)

Other Seat Valve Models

- ARC-Aseptic Remote Controlled
- SRC-Sanitary Remote Controlled
- SRC-LS-Sanitary Long Stroke
- SMO-Sanitary Manual Operating



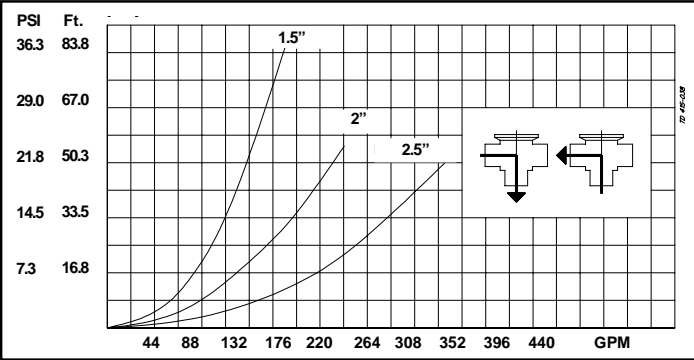
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Pressure Drop/Capacity Diagrams

Shut-off Valve

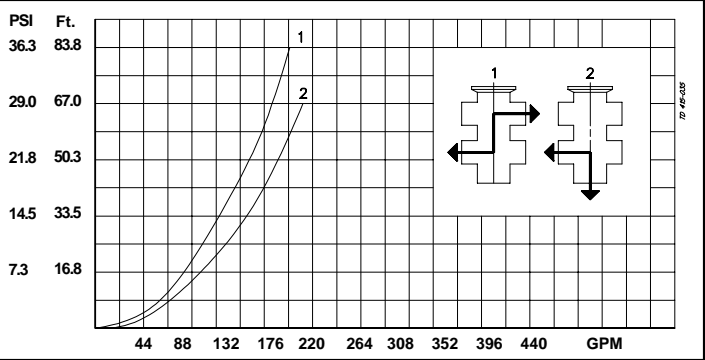
1.5-inch - 2.5-inch



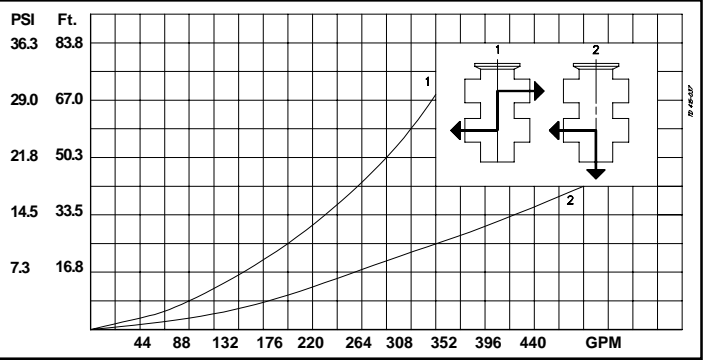
Note! For the diagrams the following applies:
Medium: Water (68° F).
Measurement: In accordance with VDI 2173.

Divert Valve

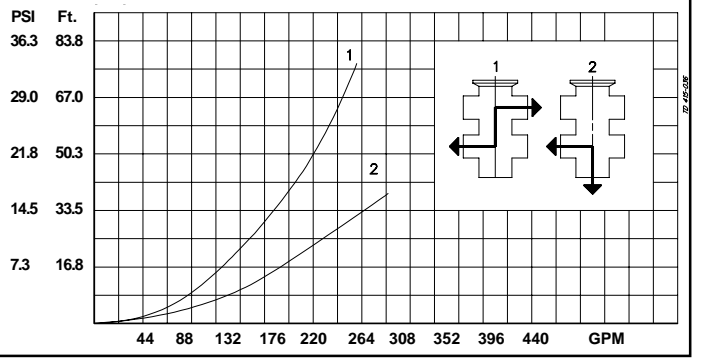
1.5-inch



2-inch



2.5-inch







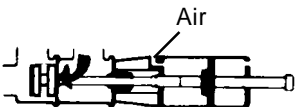

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
Pressure Data for ARC-SB


Actuator Type/Function

- 10 Air to lower, spring return (NO-lower seat)
- 20 Air to raise, spring return (NC-lower seat)
- 30 Air to raise and lower (A/A)

Table 1: Standard Valves - maximum static pressure in PSI without leakage at the valve seat.

Actuator/ valve body combination and type function direction of pressure	Air pressure (PSI)	Actuator type/function	Valve size			Air consumption (Cubic in. free air) P= air press. in PSI 1.5-inch - 2.5-inch
			1.5-inch	2-inch	2.5-inch	
 Spring to close		10 (NO)	65	65	43	0.84 x Air pressure (PSI)
 Air to close	72 87	10(NO)	101 145	58 79	43 58	0.84 x Air pressure (PSI)
 Air to close	72 87	20 (NC)	65 94	65 94	43 58	0.84 x Air pressure (PSI)
 Spring to close		20 (NC)	101	58	36	0.84 x Air pressure (PSI)
 Air to close	72 87	30(A/A)	130 145	130 145	116	0.84 x Air pressure (PSI)
 Air to close	72 87	30(A/A)	145 145	130 145	116 101	0.84 x Air pressure (PSI)



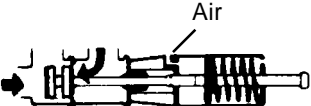
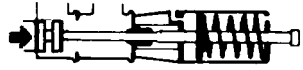
 = Values are valid for air pressure of 87 PSI

 = Actual product pressure

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Pressure Data for ARC-SB (continued)



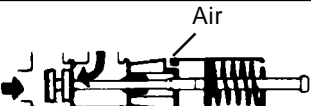

Table 2: Standard Valves - Approximate static pressure in bar against which the valve plug can open by means of the spring or air pressure.


Actuator/ valve body combination and type function direction of pressure	Air pressure (PSI)	Actuator type/function	Valve size		
			1.5-inch	2-inch	2.5-inch
 Spring to open		10 (NO)	130	87	58
 Air to open	87	10(NO)	108	108	79
 Air to open	87	20 (NC)	145	108	72
 Spring to open		20 (NC)	37	101	58


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Pressure Data for ARC-SB (continued)

Table 3: Valves with reinforced spring or larger actuator - maximum static pressure in bar without leakage at the valve seat.

Actuator/ valve body combination and type function direction of pressure	Air pressure (PSI)	Actuator type/function	Valve size			Larger actuator Valve size		
			1.5-inch	2-inch	2.5-inch	1.5-inch	2-inch	2.5-inch
 Spring to close		10 (NO)	94	94	58	130	130	87
 Air to close	72 87	10(NO)	29 29	0 29	0 14	145 *	123 *	87 *
 Air to close	72 87	20 (NC)	0 29	0 29	0 14	130 *	130 *	87 *
 Spring to close		20 (NC)	130	79	50	145	130	87

 = Values are valid for air pressure of 87 PSI

 = Do not use 87 PSI air pressure

ARC-SB Aseptic Remote Controlled Valve with Steel Bellows

Dimensions (inches)

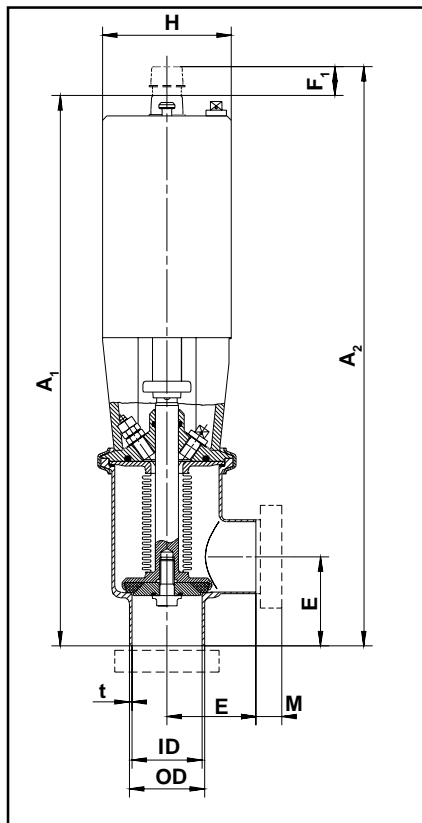
Size	1.5-inch	2-inch	2.5-inch
A ₁	14.6	15.0	15.3
A ₂	15.1	15.5	15.8
A ₃	16.4	17.7	19.7
A ₄	17.0	18.4	20.7
C	3.1	3.7	4.4
OD	1.5	2.0	2.5
ID	1.4	1.9	2.4
t	0.1	0.1	0.1
E	2.0	2.4	3.2
F ₁	0.6	0.7	1.0
M/ISO clamp	0.8	0.8	0.8
M/ISO male	0.8	0.8	0.9
M/SMS male	0.8	0.8	0.9
M/BS male	0.9	0.9	0.9
Weight (lbs)			
Shut-off valve	13.2	14.3	15.4
Divert valve	14.32	15.4	16.5

Caution, opening/closing time:

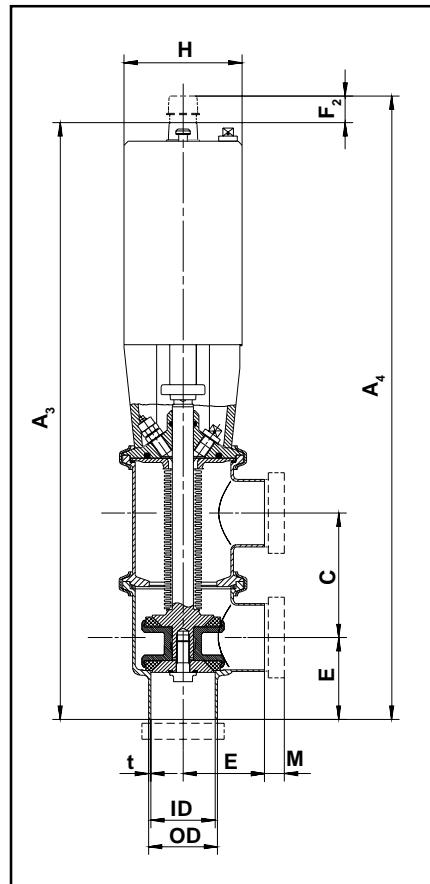
Opening/closing time will be effected by the following:

- The air supply (air pressure)
- The length and dimensions of the air hoses
- Number of valves connected to the same air hose
- Use of single solenoid valve for serial connected air actuator functions
- Product pressure

Figure 2. Dimensions



a. Shut-off valve



b. Divert valve

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Options

Equipment

- Male parts or clamp liners in accordance with required standard
- Top unit
- Laterally fitted indication unit
- Damper against water hammer
- Actuator with stronger spring
- Larger actuator for valve size 1.5" - 2.5"
- Steel bellows with double wall
- NOT-element for extra air pressure supply (spring-closed position)
- Kit for rebuilding SRC or ARC into ARC-SB

Materials Grades

- Product wetted seals of Nitrile (NBR), Fluorinated rubber (FPM) or PTFE

Tools

- Service tool for actuator
 - Lifting tool
 - Turning tool

Ordering

Please state the following when ordering:

- Connections if not welding ends
- Size
- Valve body combination
- Actuator function, NO, NC or A/A
- Options



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PD Sheet
Version 2
September, 2000

Alfa Laval